

The Impact of Climate Change on the Socio-economic and Environmental Condition of Assam

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ABSTRACT:

Climatic change on earth is a complex, polycentric deviation, presently causes a threat to the base of human existence. It is mainly caused by a wide range of human action of production and consumption process. But its effects are global and require collective motivation. The purpose of the study is to reflect the drastic climate change in Assam, a small part of North Eastern region of India and its impact on the social and economic condition of the people of the State. Assam, as well as the North East Region are most fragile and environmentally sensitive regions of the world and are regarded as one of the ecological hotspot because of presence of rich flora and fauna. Basically Assam has been witnessing adverse effect of climate change over the years. There is no doubt that climate change is real and it is happening over the years for which human being are mainly responsible. The United Nations Framework Convention on Climate Change (UNFCCC), 2015 describe climate change as a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods and also describes it as a long-term shift in the statistics of the weather. According to climate scientists, as a result of climate change billions of people, particularly those in developing countries could face shortages of water and food and also face greater risks to health and life. To combat the climate change the Paris Agreement, 2016 adopted the goal to limit the global warming to well below 2, preferably to 1.5 degree Celsius. Two major announcements concerning deforestation were also made during the World Leader Summit, 2021 at COP26. However using cross sectional analysis it is found that being an agrarian economy Assam is largely bearing the brunt of climate change. Excessive rainfall in some part of Assam causing flood and erosion rendered many homeless. On the other hand, draught like situation due to less

rainfall caused low production of tea and rice, the main income source of Assamese people. It is truth is that unless the problem is treated at the root the situation is going to worsen gradually.

INTRODUCTION

In this 21st Century, climate change is the most persistent and fragile topic which need special attention. No doubt, it is true that the climatic change on earth is a complex, polycentric deviation, presently causes a threat to the basis of human existence. One of the main causes is the wide range of human activities in the process of production and consumption of human needs. But its effects become a global threat and require collective motivation to overcome it. Assam, a small part of North –East India has recently witnessed a drastic change of climate. It is true that Assam has the evidence of climate change over the years and its impact on the social and economic condition of the people can be prominently observed in the last few years. It is no doubt that climate change is real and it is happening over the years for which human being are mainly responsible. The general observance of the subject reveal that climate change normally refer to a long term shift of temperature and weather patterns. Somewhere these shifts may be considered to be natural. Some of the natural events, such as variations in earth's orbit around the Sun, volcanic eruptions, and the impact of meteorites have caused these changes. Nevertheless, the scientists opined that since the industrial revolution in 1800, the planet has been heating up much quicker rate than before with the damaging consequence on the earth. In the words of Carrie Love, senior editor in her book on Climate Change, since the industrial revolution, the amount of greenhouse gases in the atmosphere has risen to dangerous levels. The probable reason behind this is that people burn fossil fuels like coal and gas to provide electricity, heat and transport. But it releases carbon di oxide, methane and other gases into the atmosphere.

Consequently the residue hang in the air like an invisible blanket, trapping the heat from the sun and stopping it from returning to space and thereby warming up the Earth's surface temperature. Global warming is therefore the slow increase in the average temperature of the earth's atmosphere arising due to non-radiation. As because of the connection of all systems with global climate system, addition of heat energy causes the whole climate system a change. It resulted the formation of more energy, intensive storms like hurricanes and typhoons. Similarly a warmer atmosphere makes glaciers and polar ice cap melt, raising thereby the sea levels. Climate change can be understood as one of the driver of extinction, affecting biodiversity in nearly every corner of the planet. Daniel Bodansky, JuttaBrunnee and LavanyaRajamani have therefore rightly stated in their book on International Climate Change Law that humanity has acquired geological force in the 'Anthropocene' and is pushing up against planetary boundaries. The result is that people observe extreme weather change from floods to droughts throughout the globe. It also causing glaciers and ice caps to melt and making sea level high.

According to climate scientists, as a result of climate change billions of people, particularly those in developing countries could face shortages of water and food and also face greater risks to health and life. Experts' working on the subjects also points out that concerted global action is needed to enable the countries to adapt with the effects of climate change that are happening now, otherwise which may worsen in the future. The burning of fossilfuels, deforestation, increasing livestock farming, using nitrogen contain fertilizer and fluorinated gases are some causes of climate change among many others.¹In short the analytical review of the present geographical condition of earth reveals that climatic change is a burning problem for the existence of the entire living creature on the earth. To give teeth to the reverse effect to the problem, the United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1992 which established an international environmental treaty to combat dangerous human interference with the climate system, in part by stabilizing greenhouse gas concentration in the atmosphere.²

Again the 1997 Kyoto Protocol supplement the framework laid down in the FCCC, by establishing internationally-negotiated, legally

¹Climate change.D.K. Penguin Random House-
Jacqueline Harris. Educational Consultant

²Unfccc.int

binding, quantitative emissions targets for Annex I parties. The key provisions of the protocol, requiring further work emissions trading, are the clean development mechanism and joint implementation.³Similarly, the Paris Agreement on climate change adopted at COP 21 in Paris, 2015 had taken the goal to limit the global warming to well below 2, preferably to 1.5 degree Celsius, compared to pre-industrial levels.To achieve this long-term temperature goal, all the Countries of the world aim to reach global peaking of greenhouse gas emission as soon as possible to achieve a climate neutral world by mid-century.

For better framing the efforts towards the long term goal, the Paris Agreement invites countries to formulate and submit by 2020, long-term low greenhouse gas emission development strategies (LT-LEDS). However it is transparent that the implementation of the Paris Agreement requires the economic and social transformation throughout the globe on the basis of best available scientific method. To resist the environmental degradation, by 2030, it is considered that zero-carbon solution could be the best competitive strategies for sectors representing over 70% global emissions. Regarding the threat of climate change, the G20 summit, 2021 held at Rome had directed much of its attention towards chalking out strategies and building consensus to mount a unanimous shield against global warming.⁴ Worth mentioning here that being an active part of G20 summit India have agreed to make farming less polluting and more sustainable to reverse the trend of environmental degradation.

Eventually the recent Glasgow Climate Pact, 2021 has been widely described as a compromise agreement to do better for coming year. There was the reference for the first time, of phasing down unabated coal power and phasing out inefficient fossil fuel subsidies. Two major announcements concerning deforestation were also made in this Summit.⁵ The Glasgow Leaders Declaration on Forests and land use was signed by more than 130 countries promising to work collectively to halt and reverse forest loss and land degradation by 2030. India, being a part of this conference agreed along with 27 countries to sign a

³International Climate Change Law.Daniel
Bodansky, JuttaBrunnee and

LavanyaRajamani.Oxford University Press. P.160

⁴COP26 and the road ahead-by AnuragBorthakur.
The Assam Tribune,20/11/2021, Guwahati, Assam.

⁵Ringside reflections on Glasgow Climate Pact,
RiturajPhukan.Assam Tribune. 22/11/2021

sustainable agriculture action agenda in a bid to make farming less polluting and more sustainable.⁶

Despite all the efforts and analysis at the international as well as at the national level, the drastic change of the climate in Assam along with India is seen rampant. The key issue that India focus is mainly on environmental degradation. However, in India, the major causes of environmental degradation are modern urbanization, industrialization, over population growth, deforestation etc. Under the National Mission on Enhanced Energy Efficiency (NMEEE), India launched a National Action Plan on Climate Change in 2008, which focuses on the following eight areas or missions- Solar, Enhanced energy efficiency, sustainable habitat, water, sustaining the Himalayan ecosystem, National Mission for a Green India, National Mission for sustainable agriculture and N.M.on Strategic knowledge for climate change. Not only that, to protect the environment, the Constitution of India contains certain specific provisions. The Directive Principle of State Policy under Chapter-IV (Art-36 to 51) and the Fundamental Duties under Chapter-IVA (Art-51A) exclusively enunciate the national commitment to protect and improve the environment. In this connection the Indian Judiciary also not fallen behind. In Taj Trapezium case, filed by M.C.Mehta, the Supreme Court of India recognized the principle of sustainable development for the protection of environment. Apart from this in a number of cases the Supreme Court of India have given the decision for the protection of environment.

Assam, a small part of North Eastern Region of India is the most fragile and environmentally sensitive region of the world and is regarded as one of the ecological hotspot because of presence of rich flora and fauna. Basically Assam has been witnessing the adverse effects of climate change for the last few decades. The IPCC report also describes the Eastern Himalayan range, of which Assam is a part, and is highly sensitive to climate change. To understand the climatic change of Assam an empirical research study was done in some hotspot area and some fragile issue were observed. The methodology was used in this work and was carried out using participatory and interactive process to understand the impacts of climate change on various social issues. Not the less, some issues which surrounds the day to day life of the people of Assam, and the impacts on their social security and future threats that are looming ahead of them and the steps that are being

taken at the community and the government level were considered here. Focal information have been collected from the report prepared by the Centre for Environment, Social and Policy Research (CESPR), Guwahati, (a busy city in Assam) along with Rashtriya Gramin Vikas Nidhi (RGVN) in collaboration with Indian Network on Ethics and Climate Change (INECC).

Regarding climate change in Assam, the climate scientist opined that rising temperature in the region as a whole and decreasing rainfall in the eastern and southern areas have been observed.⁷ As per the Meteorological scientists, there has been gradual change in the rainfall pattern in Assam over the past 3-4 decades and a steady rise of the temperature is observed. Assam is highly vulnerable to floods, river bank erosion, sand casting, landslides, and cyclonic storms. The exposure to such hazards also aggravated because of the location of the state in the North Eastern part which is one of the most seismically active regions in the world. According to the Regional Meteorological Centre (RMC) in Guwahati, between 2001 and 2011, the deficiency in monsoon rainfall of the Assam-Meghalaya subdivision was found to range between 21 percent (2002 and 2010) and 37 per cent (2006).

The Assam State Action Plan on Climate Change, 2012-2017, states that the region has experienced increase in the annual mean maximum temperatures, which increase at the rate of +0.11 degree centigrade per decade and annual mean temperature at the rate of 0.04 degree centigrade per decade in the region. Again the climate change is also expected to negatively impact the water resources sector by increasing the freshwater scarcity in the state.⁸ Some of the leading academicians in the state of Assam have the opinion that the marginalized communities specially the women who are dependent on the critical ecological resources such as water, forest are the most vulnerable sector of the society and their culture naturally is also become vulnerable due to climatic change. It is well known that the constituents of culture do not take shape in vacuum, and they emerge out of the prolonged interaction of man with his specific environment, both physical and social. The perception regarding the impact of climate change has been explored here through qualitative and quantitative approach. The women in this area have the opinion that due to

⁷ Das 2004, Mirza et al.1998

⁸ Report of Centre for Environment, Social and Policy Research (CESPR), Guwahati. Assam.

⁶ Supra.4

the excessive misty weather, paddy is destroyed in the winter which effect at the agricultural sector. On the other hand, excessive rainfall in monsoon submerges the paddy field. It is observed that in the present time higher level of flooding damages the crop. Due to the flood the children are affected by different diseases like dysentery, jaundice, skin disease, malaria, cold and fever. The cultivator opined that in the past it used to rain sufficiently, and at that period they applied less fertilizer in the land and it worked properly. In several areas, the income of families who are solely dependent on agriculture for their livelihood has declined several folds as with climate change there has been a change in the rainfall pattern and also there has been a decrease in the rainfall. It was also seen that there has been a rise in the frequency of drought like situation in the state which is also affecting the economic conditions of the farmers in the state. The economic deterioration resulted the womenfolk who are basically home maker to work to supplement the families' income. Many poor families pointed out that this affects the education of the girl child also as the responsibilities of the household shifted to the girl child. It is also observed that due to the change of climatic condition, more particularly due to increasing of temperature, the State has major impact on the economic condition. Tea production and selling is one of the major income sources of Assam. Increase of temperature over the year reduces the production of tea in Assam which has seriously affected the economic growth of the State. Besides that the adverse effect of flood and draught like situation reduces the production of rice in Assam. The fact is that if climate change continues at this rate then the acute necessity of people having to uproot oneself from their original place of existence to seek livelihood somewhere else may increase. In Majuli, the world largest river island in the river Brahmaputra, increased erosion has been considered as one of the major impact of climate change. The climatic condition varies from place to place, with drought on one hand in Baksa District, while heavy floods erode away huge tracts of land in Majuli and Dibrugarh District. It may be concluded that the impact of climate change in Assam can be observed mainly in following different issues- flood, livelihoods, tea production and rice production and on women. In this regard there is no concerted effort so far on the part of the Government agencies to address the issue of climate change as a whole, although work is done to mitigate the effects of flood and erosion in the state of Assam. It is needless to say that unless the problem is treated at the root by the concerted

efforts at the national and international level, the situation of climate change will be worsen gradually.